

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the application of: Morin et al.

Art Unit: [to be assigned]

Serial No.: [to be assigned]

Examiner: [to be assigned]

Filing Date: Herewith

For: TELOMERASE REVERSE  
TRANSCRIPTASE  
TRANSCRIPTIONAL REGULATORY  
SEQUENCES

## INFORMATION DISCLOSURE STATEMENT

## PURSUANT TO 37 CFR § 1.98(d)

Assistant Commissioner for Patents  
Washington, D.C. 20231

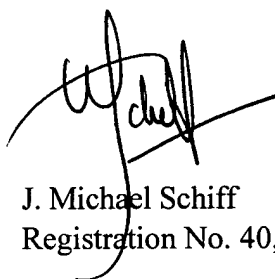
Dear Sir:

The information listed in the accompanying form PTO-1449 and provided herewith may be material to examination of this application and is submitted in compliance with the duty of disclosure under 37 CFR § 1.56. The Examiner is requested to make this information of record in the application.

This Information Disclosure Statement is not to be construed as a representation that a full search for relevant information has been made, that all relevant information has been found, or that the information provided with this Statement is considered to be material to patentability of the claimed invention as defined under 37 CFR § 1.56(b).

It is believed that no fee is required for submission of this Statement, which is filed before the first Office Action on the merits of the application. Nevertheless, should a fee be required for consideration of this Statement and the listed information, the Assistant Commissioner is authorized to charge such fee to Deposit Account No. 07-1139, referencing the attorney Docket Number indicated above.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'J. Michael Schiff', is written over a horizontal line.

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July 11, 2000.

<b>Form 1449</b> (modified)  <b>Information Disclosure Statement By Applicant</b>  (Use Several Sheets if Necessary)	Docket: 019/251C  Title: Telomerase Reverse Transcriptase Transcriptional Regulatory Sequences Inventors: Morin, G., <i>et al.</i>  Filing Date: Herewith Group: [to be assigned]	U.S.S.N. [to be assigned]  09/615039 07/11/00
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### U.S. Patent Documents

Examiner Initial	Ref.	Patent No.	Filing Date	Issue Date	Class/ Subclass	Inventors:	Title:
	A	5,416,017	25 Mar 1993	16 May 1995	435/240.2	Burton, F.H., et al.	Cholera Toxin Gene Regulated by Tissue-Specific Promoters
	B	5,698,443	27 Jun 1995	16 Dec 1997	435/320.1	Henderson, D.R., et al.	Tissue Specific Viral Vectors
	C	5,728,379	7 Jun 1995	17 Mar 1998	424/93.2	Martuza, R.L., et al.	Tumor- or Cell-Specific Herpes Simplex Virus Replication
	D	5,998,205	1 Jul 1997 (pub. 6 Jun 1996)	7 Dec 1999	435/325	Hallenbeck, P.L., et al.	Vectors for Tissue-Specific Replication

### Foreign Patent or Published Foreign Patent Application

Examiner Initial	Ref.	Document No.	Publ. Date	Jurisdiction	Title:	Translation	
						Yes	No
	E	WO 98/14592	9 Apr 1998	PCT	Telomerase Reverse Transcriptase	X	
	F	WO 98/14593	9 Apr 1998	PCT	Human Telomerase Catalytic Subunit	X	
	G	WO 99/33998	8 Jul 1999	PCT	Regulatory DNA Sequences of the Human Catalytic Telomerase Sub-Unit Gene, Diagnostic and Therapeutic Use Thereof	X (partial)	X
	H	WO 99/38964	5 Aug 1999	PCT	Promoter Regions of the Mouse and Human Telomerase RNA Component Genes	X	

### Other Documents

Examiner Initial	Ref.	Author, Title, Date, Source
	I	Aleman, R., et al., "Complementary adenoviral vectors for oncolysis", <i>Cancer Gene Therapy</i> , 6(1):21-25 (1999)
	J	Berenson, M., et al., "Different efficacy of <i>in vivo</i> herpes simplex virus thymidine kinase gene transduction and ganciclovir treatment on the inhibition of tumor growth of murine and human melanoma cells and rat glioblastoma cells", <i>Cancer Gene Therapy</i> , 6(4):358-366 (1999)
	K	Bi, W., et al., "An HSVtk-mediated local and distant antitumor bystander effect in tumors of head and neck origin in athymic mice", <i>Cancer Gene Therapy</i> , 4(4):246-252 (1997)
	L	Blackburn, R.V., et al., "Adenoviral-mediated Transfer of a Heat-inducible Double Suicide Gene into Prostate Carcinoma Cells", <i>Cancer Res.</i> , 58:1358-1362 (1 Apr 1998)
	M	Bouali-Benazzouz, R., et al., "Therapeutic efficacy of the thymidine kinase/ganciclovir system on large experimental gliomas: a nuclear magnetic resonance imaging study", <i>Gene Therapy</i> , 6:1030-1037 (1999)
	N	Braakman, E., et al., "Ganciclovir-mediated <i>in vivo</i> elimination of myeloid leukemic cells expressing the HSVtk gene induces HSVtk loss variants", <i>Gene Therapy</i> , 6:1139-1146 (1999)
	O	Brand, K., et al., "Tumor cell-specific transgene expression prevents liver toxicity of the adeno-HSVtk/GCV approach", <i>Gene Therapy</i> , 5:1363-1371 (1998)

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<b>Form 1449</b> (modified)	Docket: 019/251C	U.S.S.N. [to be assigned]
<b>Information Disclosure</b>	Title: Telomerase Reverse Transcriptase Transcriptional Regulatory Sequences	
<b>Statement By Applicant</b>	Inventors: Morin, G., <i>et al.</i>	
(Use Several Sheets if Necessary)	Filing Date: Herewith	Group: [to be assigned]

### Other Documents

Examiner Initial	Ref.	Author, Title, Date, Source
	P	Cao, G., et al., "Effective and safe gene therapy for colorectal carcinoma using the cytosine deaminase gene directed by the carcinoembryonic antigen promoter", <i>Gene Therapy</i> , 6:83-90 (1999)
	Q	Chase, M., et al., "An oncolytic viral mutant that delivers the <i>CYP2B1</i> transgene and augments cyclophosphamide chemotherapy", <i>Nature Biotech.</i> , 16:444-448 (May 1998)
	R	Chen, J., et al., "Targeted <i>In Vivo</i> Delivery of Therapeutic Gene into Experimental Squamous Cell Carcinomas Using Anti-Epidermal Growth Factor Receptor Antibody: Immunogene Approach", <i>Human Gene Therapy</i> , 9:2673-2681 (10 Dec 1998)
	S	Coffey, M.C., et al., "Reovirus Therapy of Tumors with Activated Ras-Pathway", <i>Science</i> , 282:1332-1334 (13 Nov 1998)
	T	Delaney, C.L., et al., "Conditional ablation of cerebellar astrocytes in postnatal transgenic mice", <i>J. Neurosci.</i> , 16(21):6908-6918 (1 Nov 1996)
	U	Devereux, T.R., et al., "DNA Methylation Analysis of the Promoter Region of the Human Telomerase Reverse Transcriptase ( <i>hTERT</i> ) Gene", <i>Cancer Res.</i> , 59:6087-6090 (15 Dec 1999)
	V	Elshami, A.A., et al., "The effect of promoter strength in adenoviral vectors containing herpes simplex virus thymidine kinase on cancer gene therapy <i>in vitro</i> and <i>in vivo</i> ", <i>Cancer Gene Therapy</i> , 4(4):213-221 (1997)
	W	Greenberg, R.A., et al., "Telomerase reverse transcriptase gene is a direct target of c-Myc but is not functionally equivalent in cellular transformation", <i>Oncogene</i> , 18:1219-1226 (1999)
	X	Hallenbeck, P.L., et al., "A Novel Tumor-Specific Replication-Restricted Adenoviral Vector for Gene Therapy of Hepatocellular Carcinoma", <i>Human Gene Therapy</i> , 10:1721-1733 (1 Jul 1999)
	Y	Heise, C.C., et al., "Efficacy of a replication-competent adenovirus (ONYX-015) following intratumoral injection: Intratumoral spread and distribution effects", <i>Cancer Gene Therapy</i> , 6(6):499-504 (1999)
	Z	Heise, C.C., et al., "Intravenous Administration of ONYX-015, a Selectively Replicating Adenovirus, Induces Antitumoral Efficacy", <i>Cancer Res.</i> , 59:2623-2628 (1 Jun 1999)
	AA	Herman, J.R., et al., "In Situ Gene Therapy for Adenocarcinoma of the Prostate: A Phase I Clinical Trial", <i>Human Gene Therapy</i> , 10:1239-1249 (1 May 1999)
	BB	Heyman, R.A., et al., "Thymidine kinase obliteration: creation of transgenic mice with controlled immune deficiency", <i>Proc. Natl. Acad. Sci. USA</i> , 86(8):2698-2702 (Apr 1989)
	CC	Horikawa, I., et al., "Cloning and Characterization of the Promoter Region of Human Telomerase Reverse Transcriptase Gene", <i>Cancer Res.</i> , 59:826-830 (15 Feb 1999)
	DD	Kanai, F., et al., "In Vivo Gene Therapy for $\alpha$ -Fetoprotein-producing Hepatocellular Carcinoma by Adenovirus-mediated Transfer of Cytosine Deaminase Gene", <i>Cancer Res.</i> , 57:461-465 (1 Feb 1997)
	EE	Kasuya, H., et al., "Intraperitoneal Delivery of hrR3 and Ganciclovir Prolongs Survival in Mice with Disseminated Pancreatic Cancer", <i>J. Surgical Onc.</i> , 72:136-141 (1999)
	FF	Klatzmann, D., et al., "A Phase I/II Dose-Escalation Study of Herpes Simplex Virus Type I Thymidine Kinase "Suicide" Gene Therapy for Metastatic Melanoma", <i>Human Gene Therapy</i> , 9:2585-2594 (20 Nov 1998)
	GG	Klatzmann, D., et al., "A Phase I/II Study of Herpes Simplex Virus Type I Thymidine Kinase "Suicide" Gene Therapy for Recurrent Glioblastoma", <i>Human Gene Therapy</i> , 9:2595-2604 (20 Nov 1998)
	HH	Kramm, C.M., et al., "Therapeutic Efficiency and Safety of a Second-Generation Replication-Conditional HSV1 Vector for Brain Tumor Gene Therapy", <i>Human Gene Therapy</i> , 8:2057-2068 (20 Nov 1997)
	II	Kyo, S., et al., "Estrogen Activates Telomerase", <i>Cancer Res.</i> , 59:5917-5921 (1 Dec 1999)
	JJ	Kyo, S., et al., "Sp1 cooperates with c-Myc to activate transcription of the human telomerase reverse transcriptase gene ( <i>hTERT</i> )", <i>Nucleic Acids Res.</i> , 28(3):669-677 (2000)

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<b>Information Disclosure Statement By Applicant</b>	Title: Telomerase Reverse Transcriptase Transcriptional Regulatory Sequences Inventors: Morin, G., <i>et al.</i>	
(Use Several Sheets if Necessary)	Filing Date: Herewith	Group: [to be assigned]

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Examiner Initial	Ref.	Author, Title, Date, Source
	KK	Li, P.-X., et al., "Differential chemosensitivity of breast cancer cells to ganciclovir treatment following adenovirus-mediated herpes simplex virus thymidine kinase gene transfer", <i>Cancer Gene Therapy</i> , 6(2):179-190 (1999)
	LL	Mawatari, F., et al., "Retrovirus-mediated gene therapy for hepatocellular carcinoma: Selective and enhanced suicide gene expression regulated by human $\alpha$ -fetoprotein enhancer directly linked to its promoter", <i>Cancer Gene Therapy</i> , 5(5):301-306 (1998)
	MM	Miyatake, S.-I., et al., "Hepatoma-specific antitumor activity of an albumin enhancer/promoter regulated herpes simplex virus in vivo", <i>Gene Therapy</i> , 6:564-572 (1999)
	NN	Oh, S., et al., "In Vivo and in Vitro Analyses of Myc for Differential Promoter Activities of the Human Telomerase (hTERT) Gene in Normal and Tumor Cells", <i>Biochem. Biophys. Res. Comm.</i> , 263:361-365 (1999)
	OO	Oh, S., et al., "The Wilms' Tumor 1 Tumor Suppressor Gene Represses Transcription of the Human Telomerase Reverse Transcriptase Gene", <i>J. Biol. Chem.</i> , 274(52):37473-37478 (24 Dec 1999)
	PP	Pan, C.-X., et al., "A novel tumor-specific gene therapy for bladder cancer", <i>Med. Hypotheses</i> , 53(2):130-135 (1999)
	QQ	Princen, F., et al., "Repeated cycles of retrovirus-mediated HSVtk gene transfer plus ganciclovir increase survival of rats with peritoneal carcinomatosis", <i>Gene Therapy</i> , 5:1054-1060 (1998)
	RR	Robertson, M.W., III, et al., "Use of a tissue-specific promoter for targeted expression of the herpes simplex virus thymidine kinase gene in cervical carcinoma cells", <i>Cancer Gene Therapy</i> , 5(5):331-336 (1998)
	SS	Rodriguez, R., et al., "Prostate Attenuated Replication Competent Adenovirus (ARCA) CN706: A Selective Cytotoxic for Prostate-specific Antigen-positive Prostate Cancer Cells", <i>Cancer Res.</i> , 57:2559-2563 (1 Jul 1997)
	TT	Rogulski, K.R., et al., "Double Suicide Gene Therapy Augments the Antitumor Activity of a Replication-Competent Lytic Adenovirus through Enhanced Cytotoxicity and Radiosensitization", <i>Human Gene Therapy</i> , 11:67-76 (1 Jan 2000)
	UU	Rothmann, T., et al., "Replication of ONYX-015, a Potential Anticancer Adenovirus, Is Independent of p53 Status in Tumor Cells", <i>J. Virology</i> , 72(12):9470-9478 (Dec 1998)
	VV	Shand, N., et al., "A Phase 1-2 Clinical Trial of Gene Therapy for Recurrent Glioblastoma Multiforme by Tumor Transduction with the Herpes Simplex Thymidine Kinase Gene Followed by Ganciclovir", <i>Human Gene Therapy</i> , 10:2325-2335 (20 Sep 1999)
	WW	Siders, W.M., et al., "Melanoma-specific cytotoxicity induced by a tyrosinase promoter-enhancer/herpes simplex virus thymidine kinase adenovirus", <i>Cancer Gene Therapy</i> , 5(5):281-291 (1998)
	XX	Smiley, W.R., et al., "Establishment of Parameters for Optimal Transduction Efficiency and Antitumor Effects with Purified High-Titer HSV-TK Retroviral Vector in Established Solid Tumors", <i>Human Gene Therapy</i> , 8:965-977 (20 May 1997)
	YY	Sterman, D.H., et al., "Adenovirus-Mediated Herpes Simplex Virus Thymidine Kinase/Ganciclovir Gene Therapy in Patients with Localized Malignancy: Results of a Phase I Clinical Trial in Malignant Mesothelioma", <i>Human Gene Therapy</i> , 9:1083-1092 (1 May 1998)
	ZZ	Su, H., et al., "Tissue-specific expression of herpes simplex virus thymidine kinase gene delivered by adeno-associated virus inhibits the growth of human hepatocellular carcinoma in athymic mice", <i>Proc. Natl. Acad. Sci. USA</i> , 94:13891-13896 (Dec 1997)
	AAA	Takakura, M., et al., "Cloning of Human Telomerase Catalytic Subunit (hTERT) Gene Promoter and Identification of Proximal Core Promoter Sequences Essential for Transcriptional Activation in Immortalized and Cancer Cells", <i>Cancer Res.</i> , 59:551-557 (1 Feb 1999)
	BBB	Tanaka, T., et al., "Adenovirus-mediated Prodrug Gene Therapy for Carcinoembryonic Antigen-producing Human Gastric Carcinoma Cells in Vitro", <i>Cancer Res.</i> , 56:1341-1345 (1996)
	CCC	Toda, M., et al., "Treatment of Human Breast Cancer in a Brain Metastatic Model by G207, a Replication-Competent Multimutated Herpes Simplex Virus 1", <i>Human Gene Therapy</i> , 9:2177-2185 (10 Oct 1998)

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### Other Documents

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	DDD ✓	Tronik-Le Roux, D., et al., "Suppression of Erythro-Megakaryocytopoiesis and the Induction of Reversible Thrombocytopenia in Mice Transgenic for the Thymidine Kinase Gene Targeted by the Platelet Glycoprotein αIIb Promoter", <i>J. Exp. Med.</i> , <b>181</b> :2141-2151 (Jun 1995)
	EEE ✓	Wei, M.X., et al., "Suicide Gene Therapy of Chemically Induced Mammary Tumor in Rat: Efficacy and Distant Bystander Effect", <i>Cancer Res.</i> , <b>58</b> :3529-3532 (15 Aug 1998)
	FFF ✓	Wick, M., et al., "Genomic organization and promoter characterization of the gene encoding the human telomerase reverse transcriptase (hTERT)", <i>Gene</i> , <b>232</b> :97-106 (1999)
	GGG ✓	Wildner, O., et al., "Therapy of Colon Cancer with Oncolytic Adenovirus Is Enhanced by the Addition of Herpes Simplex Virus-thymidine kinase", <i>Cancer Res.</i> , <b>59</b> :410-413 (15 Jan 1999)
	HHH ✓	Wildner, O., et al., "Enzyme Prodrug Gene Therapy: Synergistic Use of the Herpes Simplex Virus-Cellular Thymidine Kinase/Ganciclovir System and Thymidylate Synthase Inhibitors for the Treatment of Colon Cancer", <i>Cancer Res.</i> , <b>59</b> :5233-5238 (15 Oct 1999)
	III ✓	Wildner, O., et al., "Adenoviral vectors capable of replication improve the efficacy of HSVtk/GCV suicide gene therapy of cancer", <i>Gene Therapy</i> , <b>6</b> :57-62 (1999)
	JJJ ✓	Wu, K.-J., et al., "Direct activation of <i>TERT</i> transcription by c-MYC", <i>Nature Genetics</i> , <b>21</b> :220-224 (Feb 1999)
	KKK ✓	Yang, L., et al., "Intercellular Communication Mediates the Bystander Effect During Herpes Simplex Thymidine Kinase/Ganciclovir-Based Gene Therapy of Human Gastrointestinal Tumor Cells", <i>Human Gene Therapy</i> , <b>9</b> :719-728 (20 Mar 1998)
	LLL ✓	Yu, D.-C., et al., "Identification of the Transcriptional Regulatory Sequences of Human Kallikrein 2 and Their Use in the Construction of Calydon Virus 764, an Attenuated Replication Competent Adenovirus for Prostate Cancer Therapy", <i>Cancer Res.</i> , <b>59</b> :1498-1504 (1 Apr 1999)
	MMM ✓	Yu, D.-C., et al., "The Addition of Adenovirus Type 5 Region E3 Enables Calydon Virus 787 to Eliminate Distant Prostate Tumor Xenografts", <i>Cancer Res.</i> , <b>59</b> :4200-4203 (1 Sep 1999)
	NNN ✓	U.S. Patent Application Serial No. 08/974,549, "Human Telomerase Catalytic Subunit", filed 19 Nov 1997
	OOO ✓	U.S. Patent Application Serial No. 09/244,438, "Telomerase Reverse Transcriptase Transcriptional Regulatory Sequences and Methods of Using", filed 4 Feb 1999

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